

Applicati n No. 08/926,277

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object in proximity to said electroluminescent device and contacting the dielectric layer so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object.

95. A system for generating an image of a relief object comprising:

an electroluminescent device having an electrode, a light emitting layer and a dielectric layer;

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an electrical current source, said electrical current source having one lead coupled to said electrode of said electroluminescent device and a second lead for coupling to a relief object in proximity to said electroluminescent device and contacting the dielectric layer so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object; and

a one-to-one sensor array located such that said generated light is sensed by said one-to-one sensor array.

REMARKS

Claim 64 – 96 are in the application with claims 64, 79, 80, 81, 82, 90 and 95 having been amended. Of the claims under consideration, claims 64, 78, 79, 80, 81, 82, 90 and 95 are the

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independent claims. Reconsideration and further examination are respectfully requested. Initially, the Examiner rejected claims 64-77, 80 and 81 under 35 U.S.C. § 112, first paragraph, for not being properly supported by the specification as filed and under 35 U.S.C. § 112, second paragraph for indefiniteness. In particular, the Examiner has searched that two general embodiments of the invention were claimed, as a mixture, in an undisclosed manner.

In response, Applicants have amended independent claims 64, 80 and 81 in order to more particularly define and distinctly claim the inventive subject matter.

In view of the amendments to claims 64, 80 and 81, Applicants respectfully submit there is no remaining indefiniteness in those claims or in claims 65-77 which depend from amended claim 64, in its novelty. Reconsideration withdraw of the rejection of these claims under 35 U.S.C. § 112 first and second paragraphs, is requested.

Claims 78 and 79 were rejected under 35 U.S.C. § 103(a) for obviousness over Gaffney (WO 9716834). In giving the rejection, the Examiner seems to indicate that the Gaffney reference teaches all of the elements of the claimed invention with the exception of the use of a variable resistive layer. The Examiner notes that the claim variable resistive layer. The Examiner notes that the claimed variable resistive layer are known in the art and substitute would therefore be obvious.

Applicants respectfully traverse this rejection.

Independent claims 78 and 79, and the embodiment depicted in fig. 2 of the application, describe a device for generating an image of a relief object comprising a flexible electrode, a dielectric layer, a light emitting layer and a variable resistive layer. Gaffney is not understood to disclose or suggest this structure.

Specifically, the Gaffney reference discloses a first continuance electrode 15 on one surface of a piezoresistive layer 12 which varies light output of a luminescent sheet 14 and a second continuos electrode 16 on the surface of luminescent sheet 14 that is not in contact with

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piezoresistive layer 12 (Gaffney page 5 paragraph 1). Gaffney does not disclose or suggest a light emitting layer 24, a variable resistive layer 44 and a dielectric layer 26 disposed there between. For at least this reason, applicants submit that dependent claim 78 and 79 are directed to novel structure undisclosed or unsuggested by the Gaffney reference.

Further, both independent claim 78 and 79 require a variable resistive layer being comprised of conductive particles disbursed through a non-conductive medium. Notwithstanding the Examiners assertions to the contrary, Gaffney does not disclose or suggest such an element. The Gaffney reference, by contrast, discloses the use of a piezoresistive layer for a pressure transducer. Specifically, Gaffney's invention utilizes composite piezoresistive materials which are anisotropic. This is because Gaffney's device is devised to data relating to pressure. Gaffney's pressure sensitive material is chosen because it is proportional to pressure, i.e., greater pressure, greater current flow.

The present invention requires a variable resistive layer comprised of conductive particles disbursed through a non-conductive medium. This is because the invention utilizes direct contact of a relief object, such as a figure print, to develop local currents that cause a light emitting layer to emit light corresponding to the figure print image. The present invention cares nothing about proportional pressure, and thus, the Gaffney apparatus has little utility in the context of the invention.

Since Gaffney is concerned with measuring pressure, the structure and materials of the present invention would have little utility to the Gaffney apparatus. Accordingly, no one having skill in the art would consider utilizing the claimed variable resistive layer in combination with the Gaffney apparatus to develop a figure print image sensor.

Applicant's would remind the Examiner that section 2143 of the MPEP states:

“the teaching or suggestion to make the claimed combination in the reasonable expectation of success must both be found in the prior art and not based on applicants disclosure.”

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It appears that the cited combination of Gaffney together with a variable resistive layer as described in the present specification, is the result of impermissible hindsight, and only suggests itself after having recourse to the specification of the present invention. Applicant therefore respectfully submits that independent claims 78 and 79 are patentably distinguishable over Gaffney. Reconsideration and withdrawal of the rejection of claims 78 and 79 under 35 U.S.C. § 103(a) is requested.

Claims 82-96 were rejected under 35 U.S.C. § 103(a) for obviousness over Derwent abstract XP-002080114, Derwent abstract SP-002080115 and Japanese abstract 02126381. In giving the rejection, the Examiner seems to indicate that the point of novelty is use of an organic electroluminescent material in the use of a curved surface.

Applicant's respectfully traverse this rejection.

Independent claims 82, 90 and 95 are all directed to a system for generating an image of a relief object comprising an electroluminescent device including light emitting layer and a dielectric layer. For at least the reasons described above in connection with the structural deficiencies of Gaffney, Applicant's would submit that independent claims 82, 90 and 95 are also patentably distinguishable over the 114, 115 and 381 references.

Reconsideration and withdrawal of the rejection of claims 82-96 under 35 U.S.C. § 103(a) is requested.

In view of the amendments made to the claims and the foregoing remarks, Applicant's submit that claims 64-96 contain patentable subject matter over any permissible combination of the noted references. An indication of allowance of claims 64-96 and early passage to issue is respectfully solicited.



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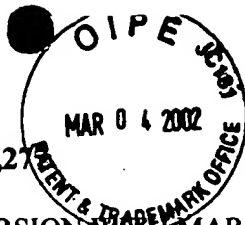
Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES

IN THE CLAIMS

64. A system for generating an image of a relief object comprising:
- an electroluminescent device including a light emitting layer coupled to [having] an electrode;
 - a dielectric layer disposed adjacent the light emitting layer;
 - a variable resistive layer [being proximate to one surface] adjacent the dielectric layer of said electroluminescent device, said variable resistive layer being comprised of conductive particles dispersed through a non-conductive medium;
 - a flexible electrode substantially covering a surface of said variable resistive layer;
 - an electrical current source, said electrical current source having one lead coupled to said electrode of said electroluminescent device and a second lead for coupling to [a relief object contacting] said flexible electrode so that current coupled from said current source to said flexible electrode is strongly coupled through a low resistance path through said variable resistance layer to said electroluminescent device by ridges of said relief object and weakly coupled through a high resistance [patent] path through said variable resistance layer to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object.
79. A device for generating an image of a relief object comprising:
- a flexible electrode;
 - a dielectric layer and a light emitting layer in which light emitting particles are dispersed;

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a variable resistive layer between said flexible electrode and said dielectric layer, said variable resistive layer being comprised of conductive particles dispersed through a non-conductive medium;

a second electrode; and

an electrical current source, having first and second leads, said first lead of said electrical current source being coupled to said second electrode and said second lead of said electrical current source being coupled to said flexible electrode so that a localized pressure gradient generated by a portion of a relief object contacting said flexible electrode forms a conductive path through said variable resistive layer which corresponds to said localized pressure gradient whereby said current flows from said flexible electrode through said variable resistive layer, dielectric layer and light emitting particles to said second electrode in correspondence with said localized pressure gradient to generate a light image of said relief object.

80. A system for generating an image of a relief object comprising:

an electroluminescent device having an electrode and configured as an organic electroluminescent device;

[an electrical current source, said electrical current source having one lead coupled to said electrode of said electroluminescent device and a second lead for coupling to a relief object in proximity to said electroluminescent device so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object;]

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a variable resistive layer being proximate to one surface of said electroluminescent device, said variable resistive layer being comprised of conductive particles dispersed through a non-conductive medium;

a flexible electrode that substantially covers a surface of said variable resistive layer;
and

said electrical current source being a direct current source having one lead coupled to said electrode of said organic device and a second lead exposed at a surface of said flexible electrode so that a localized pressure gradient generated by a portion of a relief object contacting said flexible electrode forms a conductive path through said variable resistive layer which corresponds to said localized pressure gradient whereby said current flows from said direct current source and flexible electrode through [which] said variable resistive layer to said electrode of said organic electroluminescent device in correspondence with said localized pressure gradient to generate a light image of said relief object.

81. A method for imaging a relief object comprising the steps of:

coupling an electrode of an electroluminescent device to a current source;

[contacting a relief object to an exposed surface of said electroluminescent device
coupling said current source to said relief object so that current flows from said relief object to said electroluminescent device to generate an optical image of said relief object;]

locating a variable resistive layer adjacent [said exposed surface] a dielectric layer of said electroluminescent device, said variable resistive layer being comprised of conductive particles dispersed through a non-conductive medium;

substantially covering said variable resistive layer with a flexible electrode;

coupling said current source to said flexible electrode [rather than said relief object]
so that said contacting step contacts said] a relief object [with] contacts said flexible electrode so that

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pressure from ridges and valleys of said relief object generate relatively low and high resistance conductive paths through said variable resistive layer whereby said current from said current source is provided through said variable resistive layer at different magnitudes in correspondence to said ridges and valleys of said relief object and said different currents cause said electroluminescent device to generate said image of said relief object;

82. A system for generating an image of a relief object comprising:

an electroluminescent device having a transparent electrode layer and a dielectric layer receiving dispersed light emitting particles and substantially covering said transparent electrode layer; and

an electrical current source, said electrical current source having one lead coupled to said electrode of said electroluminescent device and a second lead for coupling to a relief object in proximity to said electroluminescent device and contacting the dielectric layer so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object;

90. A system for generating an image of a relief object comprising:

an organic electroluminescent device having a transparent electrode as an anode, said transparent anode having a thin, sublimed molecular film deposited thereon, the electroluminescent device including a light emitting layer and a dielectric layer; and

an electrical current source, said electrical current source having one lead coupled to said transparent anode of said electroluminescent device and a second lead for coupling to a relief

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object in proximity to said electroluminescent device and contacting the dielectric layer so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object.

95. A system for generating an image of a relief object comprising:

an electroluminescent device having an electrode, a light emitting layer and a dielectric layer;

an electrical current source, said electrical current source having one lead coupled to said electrode of said electroluminescent device and a second lead for coupling to a relief object in proximity to said electroluminescent device and contacting the dielectric layer so that current coupled from said current source to said relief object is strongly coupled to said electroluminescent device by ridges of said relief object and weakly coupled to said electroluminescent device by valleys of said relief object whereby more intense light is generated by areas of said electroluminescent device strongly coupled to said current from said ridges of said relief object and less intense light is generated by areas of said electroluminescent device weakly coupled to said current from valleys of said relief object to form an image of the relief object; and

a one-to-one sensor array located such that said generated light is sensed by said one-to-one sensor array.